Assistance Agreement Quarterly Report Summary for the period of July 1, 2004, to September 30, 2004

DATE OF REPORT: ..... October 1, 2004

EPA AGREEMENT NUMBER: ... R-82805701-01

TITLE: ..... Fresno Supersite Study

INVESTIGATORS: ..... John G. Watson and Judith C. Chow

INSTITUTION: ..... Desert Research Institute, 2215 Raggio Parkway, Reno NV 89512

RESEARCH CATEGORY: ..... Particulate Matter (PM) Supersites Monitoring Program (99-NCERQA-X1)

PROJECT PERIOD: ..... 3/31/99 to 9/30/2004

OBJECTIVE OF RESEARCH: .... This study will provide an atmospheric measurement study which is designed to address and integrate objectives of the atmospheric sciences, health, and exposure research communities.

PROGRESS SUMMARY/ACCOMPLISHMENTS: Third quarter 2004 activities are summarized based on applicable tasks stated in the Fresno Supersite QAPP.

Task 1 – Equipment Procurement and Installation.

- No equipment was added this quarter.

Task 2 – Network Operations and Data Processing.

- Network operations and data processing have continued through this calendar quarter.
- Peter Ouchida of the California Air Resources Board (ARB) has been working with ARB's computer support group to centralize the data acquisition system with others behind the ARB firewall. Some preliminary validation will be done by ARB, which will provide DRI with access to five-minute data for additional validation and analysis. Testing of the new data logger is currently taking place.

Task 3 – Laboratory Measurements.

- $PM_{2.5}$ mass and chemistry analyses of filter samples from FRM and chemical speciation samplers, collected every sixth day through 11/30/03 and every third day in December 2003, have been completed; validation of this data was completed on 6/15/04; Data collection resumed to every sixth day in January 2004. Chemical analyses of samples through 3/31/04 is in progress.

- DRI continues to operate the $PM_{2.5}$ Hi-Vol instrument at a twice-per-week sampling frequency in order to obtain data for carbon intercomparison.

Task 4 – Quality Assurance.

- DRI continues to finalize standard operating procedures for the data analysis methods of the field measurements.

Task 5 – Data Validation and Data Analysis.

- Level 1a and 1b data validation is in process for continuous gas, particle mass and chemistry, light scattering, light absorption, particle size, and meteorological measurements through 6/30/04 A portion of the continuous data, collected through 5/1/04, has been submitted to ARB's CCAQS FTP site. Validation of the remaining data through 6/30/04 is in progress. This data will be submitted over the next several months. DRI continues to work with and submit data to NARSTO and SIRD as well.

Task 6 – Management and Reporting.

- No site visit occurred during this quarter. Drs. John Watson and Judith Chow are planning to visit the Fresno Supersite before the end of the fourth quarter.

PUBLICATIONS/PRESENTATIONS/REPORTS:

One article was published during this quarter:

Chow, J.C., J.G. Watson, L.W.A. Chen, W.P. Arnott, H. Moosmüller, and K. Fung (2004). Equivalence of Elemental Carbon by Thermal/Optical Reflectance and Transmittance with Different Temperature Protocols. *Environ. Sci. Technol.*, **38**(16):4414-4422.

No publications were submitted during this quarter.

The following presentations were given during this quarter:

Chow, J.C. and J.G. Watson (2004). Uncertainties in the Measurement of Carbon in Suspended Particles. Presented at the 16th International Conference on Nucleation and Atmospheric Aerosols, 27 July 2004, Kyoto, Japan.

Watson, J.G., J.C. Chow, and D.H. Lowenthal (2004). Nanoparticle Concentrations and Photochemical Nucleation at the Fresno Supersite. Presented at the 16th International Conference on Nucleation and Atmospheric Aerosols, 27 July 2004, Kyoto, Japan.

Watson, J.G. and J.C. Chow (2004). Ultrafine Particle Mechanisms, Measurement Methods, and Composition. Presented to the Japan Automobile Research Institute, Japan Automobile Manufacturers' Association, 2 August 2004.

Watson, J.G., J.C. Chow, and D.H. Lowenthal. (2004). Nanoparticles, Photochemical Nucleation, and the Fresno Supersite. Presented to Environment Canada, 9 August 2004, Toronto, Ontario, Canada.

Watson, J.G., J.C. Chow, and D.H. Lowenthal (2004). Nanoparticle Concentrations and Photochemical Nucleation at the Fresno Supersite. Presented to Grimm Aerosol Technik GmbH and Co., Ainring, Germany, 18 September 2004.

Watson, J.G., J.C. Chow, and D.H. Lowenthal (2004). Ultrafine and Nanoparticles at the Fresno Supersite. Presented to GSF National Research Center for Environment and Health, Neuherberg, Munich, Germany, 20 September 2004.

No reports were prepared during this quarter.

FUTURE ACTIVITIES: During the fourth quarter of 2004, the principal investigators plan to: 1) continue data analysis from the 2003 Winter Carbon Intercomparison study; 2) continue data analysis from the Fresno Asthmatic Children's Environment Study (FACES) (the concurrent health study conducted by the University of California, Berkeley, and ARB); 3) continue finalizing data validation criteria and database structure; and 4) continue to work with ARB to install the new Data Acquisition System.

SUPPLEMENTAL KEYWORDS: CRPAQS, ETV, FACES

RELEVANT WEB SITES: not applicable